

REMARKS

Claims 1-4 were originally filed. Claims 1-4 are rejected in the Office Action. Claims 1-4 are pending.

In the Office Action claims 1-4 were rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential elements. Specifically, the Office Action notes the omission of the field effect transistor associated with PWM control of the trolling motor. Applicant respectfully submits that the second transistor cited in the Office Action is not essential to the operation of the trolling motor or the reverse battery protection. Neither the claim nor the specification requires that the trolling motor have any particular type of controller. It should be noted that in claim 4, where the trolling motor is limited to having a pulse width modulation type controller, using a MOSFET to drive the motor is merely the preferred drive, and the claim should not be so limited. In the specification at page 7, line 5, the term used to describe reference 52 is "solid state switch" because item 52 could be a MOSFET, a bipolar transistor, an IGBT, a gate turn-off thyristor, or any other electronic-type switching device. The particular device used in the PWM drive is not essential to any part of the invention.

In the Office Action claims 1-4 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Moore, et al. (U.S. Patent No. 6,247,980) or Healey, et al. (U.S. Patent No. 6,507,164) in view of Freymuth (U.S. Patent No. 4,636,711), or Moore, et al. (U.S. Patent No. 5,939,908) or Hazelton, et al. (6,043,965), or Pakkala, et al (U.S. Patent No. 6,154,081).

With regard to Freymuth, claim 1 does not read on any combination relying on Freymuth because the reverse battery protection of Freymuth does not have a MOSFET with the drain connection connected to a first battery lead, the source connection in electrical communication with an electric motor, and said gate connection in communication with said second battery lead. The reverse battery protection of Freymuth (box 80 of FIG. 1) simply provides a freewheeling circuit (with bipolar transistors 82 and 85) which will not turn into a short circuit if the battery is reversed. It does not protect other circuitry nor does it prevent motor rotation during battery reversal.

With regard to Moore, et al. '908, first, claim 1 would not read on the combination proposed by the Examiner because the gates of MOSFETS 51 and 52 (FIGS. 3, 4, and 5) are not in communication with a second battery lead during battery reversal. Further, to provide meaningful reverse battery protection, the gate drive circuitry 40 would have to include circuitry to ensure no positive voltage could appear at the MOSFET gate 57 during battery reversal. If not, MOSFET 51 will still turn on, the inherent diode of MOSFET 52 is forward biased, and unwanted electrical current will flow which would cause unwanted movement of the trolling motor as applied to the present invention. There is no discussion in Moore, et al. '908 of this issue and thus, one would find the circuit non-operational for the purposes of the present invention if combined with either Moore, et al. '980 or Healey, et al.

With regard to Hazelton, et al and Pakkala, et al., both references are non-analogous art. Applicant's field of endeavor with regard to the present invention is trolling motors and/or trolling motor controllers. Hazelton, et al. never mentions motor control or how the circuit would be useful

in a motor controller. Pakkala, et al. is directed toward the art of automotive cruise controls and using its reverse battery protection in connection with a small motor which actuates a throttle cable. There simply is no discussion of how the circuit could be applicable to other fields.

Further, there is no motivation to make the combination suggested in the Office Action. Neither Moore, et al. '980 nor Healey, et al. recognize the problems caused by reverse battery polarity. None of Freymuth, Moore, et al. '908, Hazelton, et al., or Pakkala, et al. include any discussion which would even imply that their respective circuits would be useful in the art of trolling motors or trolling motor controllers.

Finally, none of the cited references discuss the synergistic nature of the present invention, namely, that a single device performs the functions of several devices, including the current sensing for the current limiting circuit, as claimed in claim 4.

Applicants respectfully submit that claim 1 is in condition for allowance. Claims 2-4 depend from claim 1 and, at least for the reasons stated with regard to claim 1, are likewise in condition for allowance. Reexamination and allowance of claims 1-4 are respectfully requested.

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This paper is intended to constitute a complete response to the outstanding Office Action. Please contact the undersigned if it appears that a portion of this response is missing or if there remain any additional matters to resolve. If the Examiner feels that processing of the application can be expedited in any respect by a personal conference, please consider this an invitation to contact the undersigned by phone.

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Respectfully submitted,



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